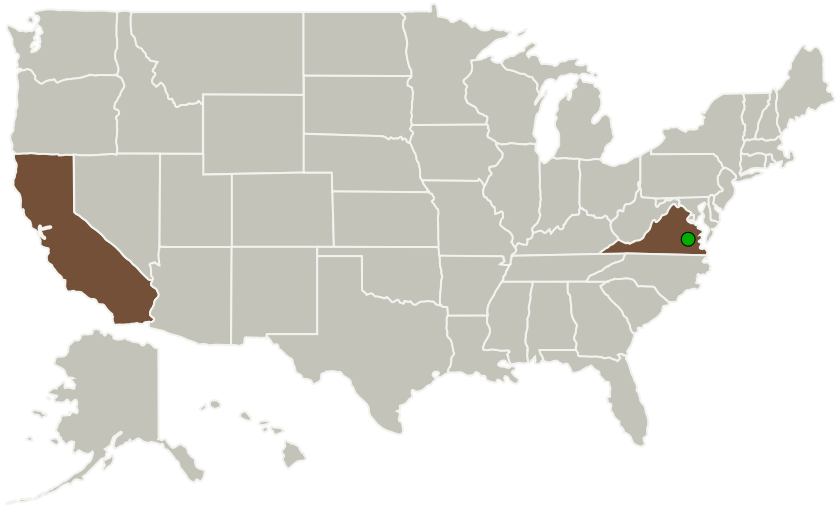
IR Beacon System for Assisted or Automated Landing of Aircraft, Phase I

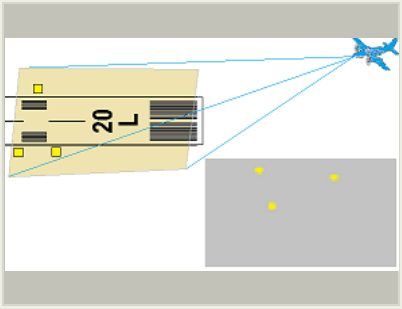
Completed Technology Project (2016 - 2016)

Project Introduction

OKSI proposes to design an optical system to support assisted or automated precision approach of fixed or rotary wing aircraft, or other low altitude airspace operations, under diverse weather conditions. The Infrared Beacon System (IRBS) will utilize beacon lighting located near the landing site and an optimized imaging and processing system onboard the aircraft. Automated software will extract observed light positions to generate aircraft position and attitude data relative to the landing site. This precise navigational guidance will be provided to the pilot or to another control system for use during approach and landing. In Phase-I, the concept will be developed in detail, including selection of lighting sources, operating wavebands, imager technology, and frame rates. The end-to-end system performance and accuracy will be simulated over a diverse set of weather and solar conditions, and preliminary concepts for output interfaces will be developed. Based on the Phase-I investigations, a prototype system will be developed and demonstrated in Phase-II.

Primary U.S. Work Locations and Key Partners





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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Opto-Knowledge Systems, Inc.(OKSI)	Lead Organization	Industry	Torrance, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Transitions

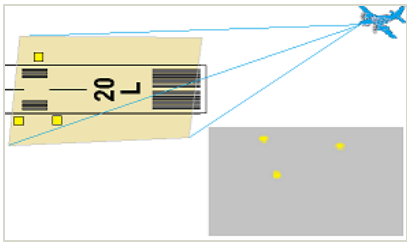
June 2016: Project Start

December 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140477)*

Images



Briefing Chart Image
IR Beacon System for Assisted or Automated Landing of Aircraft, Phase I
(https://techport.nasa.gov/image/130674)

Final Summary Chart Image
IR Beacon System for Assisted or Automated Landing of Aircraft, Phase I Project Image
(https://techport.nasa.gov/image/130994)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Opto-Knowledge Systems, Inc. (OKSI)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

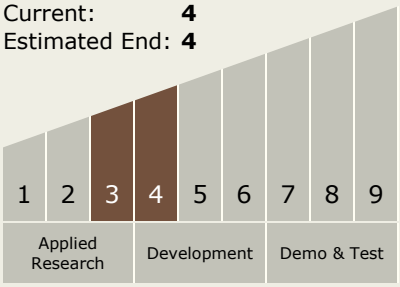
Carlos Torrez

Principal Investigator:

Tait Pottebaum

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.4 Pointing, Acquisition and Tracking (PAT)

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System